ABSTRACT OF THE DISCLOSURE

Efficient devices and methods for producing ultraviolet light are provided. One such device includes a diode-pumped 946 nanometer solid state laser, a first nonlinear crystal for generating blue light at approximately 473 nanometers, and a second nonlinear crystal for doubling the frequency of the blue light to produce a fourth harmonic beam of ultraviolet light at approximately 236.5 nanometers. In some embodiments, the second nonlinear crystal is a cooled CLBO crystal angle-tuned for non-critical phase-matching to provide high conversion efficiency. Some embodiments include a second laser which emits a fundamental beam having a wavelength of more than one micron and a third nonlinear crystal for sum-frequency mixing the fundamental beam and the fourth harmonic beam to output an ultraviolet beam having a wavelength of less than 200 nanometers.

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